A NEW SPECIES OF *STENELMIS* FROM NORTH CAROLINA (COLEOPTERA: ELMIDAE)

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Abstract

Stenelmis gammoni n. sp. is described from the New River System of North Carolina. It is a very small species (2.29-2.43 mm long) as compared with other *Stenelmis* and most closely resembles *S. humerosa,* from which it differs in being smaller, with distinctly bimaculate elytra and dark palpi.

Introduction

The North American species of the genus *Stenelmis* were revised in a monograph by Sanderson in 1938. In that study he described 18 new species, 17 of which are still valid; however, very few additions have since been made. This paper records *Stenelmis gammoni,* a new species taken from North Carolina. The beetles were collected during a study of the New River by Dr. E. F. Benfield of the Virginia Polytechnic Institute. All were from the South Fork of the New River, Ashe County, North Carolina. Ashe County, in the northwestern-most part of North Carolina, borders on the Stone Mountains of the Appalachian Range. Relationships of the species to water quality, substrate, stream size, and stream order will be published at a later date by Dr. Benfield.

We are pleased to name this species in honor of Dr. James R. Gammon, ecologist and naturalist at DePauw University whose great interest and enthusiasm in aquatic biology has influenced many students including the first author.

The description of *S. gammoni* follows the format of Sanderson (1938). Measurements are based on 25 males and 25 females, although more than 1100 adults were examined. *S. gammoni* is of the *humerosa-sinuata* group, which Sanderson (1938) distinguishes by the long and suddenly dilated last tarsal segment. The diminutive size (2.29-2.43 mm) places it among the smallest *Stenelmis* described. It is most similar to *S. humerosa* but differs in its bimaculate elytra, dark brown to black antennae and palpi, and shape and size of the male genitalia.

Stenelmis gammoni White and Brown, **new species**

Fig. 1 and 2

Size. Male: length, 2.29-2.34 mm; width, 0.90-0.97 mm. Female: length, 2.31-2.43 mm; width 0.90-0.97 mm.

Form and Color. Male and female similar, female slightly longer. Body convex, elongate, slightly wider behind. Elytra dark brown to black. Each elytron bimaculate with humeral spot distinctly embracing umbone (Fig. 1).

Head. Granulations between eye and band irregularly spaced, usually separated by more than twice their diameters. Antennae brown to black, slightly longer than pronotum. Palpi dark brown to black.

Pronotum. Male: length, 0.68-0.73 mm; width, 0.66-0.71 mm. Female: length, 0.68-0.73 mm, width, 0.64-0.73 mm. Pronotum narrowest in front, subparallel from apical angles to anterior third, arcuate in middle, converging slightly before basal angles. Median sulcus moderately deep, extending from anterior margin nearly to base, sides parallel converging broadly in posterior fifth. Lateral impressions sinuate and broader near posterior margin. Tubercles raised and distinct, basal tubercle obliquely elongate, anterior tubercle rounded. Area of median sulcus and lateral impressions dark brown to shining black. Margins of sulcus and tubercles dull

yellowish-brown. Granules uniformly distributed over pronotum, irregularly spaced, usually separated by more than twice their width, less conspicuous on lateral margins.

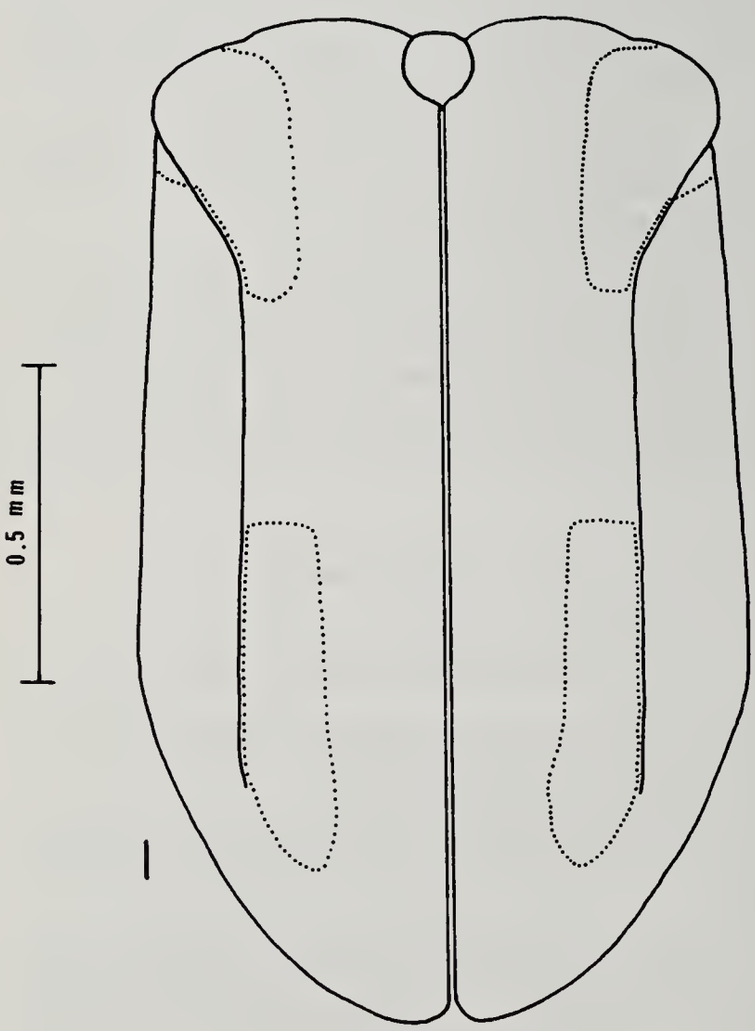
Scutellum. (seen in Fig. 1) Rounded anteriorly, tapering slightly to a point at the elytral suture. Color dull yellowish-brown, similar to the tubercles and sulcus margins of the pronotum.

Elytra. (Fig. 1) Male: length, 1.53-1.65 mm; width, 0.90-0.97 mm. Female: length, 1.60-1.68 mm; width, 0.90-0.97 mm. Elytra bimaculate. Humeral spot wide and rounded, covering umbone to nearly the third interval, well separated from subapical spot. Subapical spot elongate, extending from middle of elytron along and beyond end of sublateral carina of sixth interval. First stria complete. Disk punctures moderately deep and always present though somewhat finer on apical declivity. Third interval noticeably elevated at base.

Venter. Color gray with a bluish to greenish cast on cleaned specimens. Apical abdominal emargination approximately equal to width of last tarsal segment.

Legs. Male: hind tibiae, 0.68-0.73 mm; middle tibiae, 0.59-0.64 mm; front tibiae, 0.54-0.61 mm. Female: hind tibiae, 0.61-0.71 mm; middle tibiae, 0.57-0.64 mm; front tibiae, 0.57-0.61 mm. Last tarsal segment noticeably dilated beyond middle, distinctly longer than other 4 combined. Granules of femora usually separated by less than half their diameters. Tibiae and femora gray, tarsi dark brown to black, claws testaceous to dark brown.

Male genitalia. (Fig. 2) Total length, 0.62-0.64 mm, width, 0.14-0.15 mm, length of median lobe of aedeagus (penis), 0.40-0.41 mm. Penis slightly longer than parameres. Lateral processes on penis prominent but not greatly expanded.



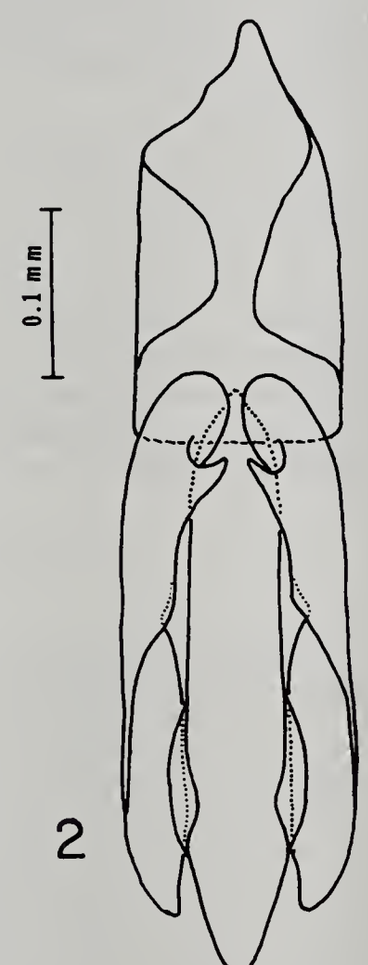


Fig. 1. *Stenelmis gammoni* n. sp., outline of elytra showing position of humeral and subapical spots.

Fig. 2. Outline of male genitalia.

Holotype. Male, United States National Museum of Natural History, Washington. UNITED STATES: North Carolina, Ashe County, South Fork of New River, 3.7 km southeast of Jefferson; elevation 810 m above M.S.L.; 8-V-71; E. F. Benfield.

Paratypes. With same data as type, 103 adults; 42 adults from same county and stream as type but labeled as, 4 km downstream from U. S. 221 bridge west-northwest of Scottville; elevation 780 m above M.S.L.; 1-VI-72; E. F. Benfield. Paratypes are to be deposited in the United States National Museum of Natural History, Washington; the Illinois Natural History Survey, Urbana; Virginia Polytechnic Institute and State University, Blacksburg; and the Stovall Museum of Science and History, Norman, Oklahoma.

Other specimens examined. Several larvae were collected along with the adults, and although they will not be described here, series have been placed with the holotype and with the paratypes.

On page 684 of the monograph by Sanderson (1938) *S. gammoni* should key to *S. humerosa* at couplet 7. The key may be altered to include *S. gammoni* by deleting "*humerosa* Mots., 692" in the first half of couplet 7 and inserting 7′ as the guide:

7′. Elytral stripe usually entire; antennae and palpi light brown to testaceous ..... *humerosa* Mots., 692.
Elytra bimaculate; antennae brown to black; palpi dark brown to black ..... *gammoni* n. sp.

In the key by Brown (1972), the characters of *S. gammoni* are intermediate between *S. humerosa* and *S. mirabilis.* To avoid some ambiguity, couplet 34 (page 32) should be deleted and 2 couplets inserted as follows:

34(33). Elytral vitta usually entire, though somewhat clouded at middle; palpi testaceous; femora and tibiae entirely gray; 2.3-2.7 mm long, 0.95-1.1 mm wide (Fig. 46): ..... *Stenelmis humerosa*
Elytra distinctly bimaculate; palpi dark brown to black ..... 34′

34′(34). Femora gray, tibiae testaceous; 2.7-2.9 mm long, 1.1-1.2 mm wide (Fig. 47): ..... *Stenelmis mirabilis*
Both femora and tibiae entirely gray; 2.29-2.43 mm long, 0.90-0.97 mm wide: ..... *Stenelmis gammoni* n. sp.

Literature Cited

Brown, H. P. 1972. Aquatic dryopoid beetles (Coleoptera) of the United States. Biota of Freshwater Ecosystems Identification Manual No. 6, Water Poll. Cont. Res. Series, Environ. Protection Agency, Washington, D. C. 82 pp.

Sanderson, M. W. 1938. A monograph revision of the North American species of *Stenelmis* (Dryopidae: Coleoptera). U. Kan. Sci. Bull. 25:635-717.